

C L A I M S

What is claimed is:

1. A method for printed circuit board (PCB) inspection, comprising:
 providing a multiplicity of PCBs placed on an inspection panel;
 5 defining each non-identical PCB in terms of geometry and features which are to
 be inspected;
 grouping said PCBs into at least one cluster, said at least one cluster being
 defined in terms of an amount, location and orientation of the PCBs in said at least one
 cluster;
 10 creating a reference image for said panel defined by a location and orientation of
 said at least one cluster on said panel; and
 inspecting said panel by comparing sensed information with said reference image.
2. The method according to claim 1 wherein pattern recognition methods are used
 15 to group said PCBs into said at least one cluster.
3. The method according to claim 1 and further comprising:
 generating an image map for said panel, said image map specifying the location
 and orientation of said at least one cluster on said panel;
 20 inputting information about the geometry and features of the PCBs into said
 image map; and
 using said image map by a computerized automated inspection system to inspect
 said PCBs.
- 25 4. The method according to claim 3 wherein said inspection system learns attributes
 of, and creates and stores a reference for, each non-identical PCB.
5. The method according to claim 4 wherein said inspection system uses said image
 map to duplicate the stored references for duplicate locations of each individual PCB.

30

6. The method according to claim 1 and further comprising using said reference image to create a mirror image of a PCB.

7. The method according to claim 1 and further comprising grouping said PCBs into
5 a cluster that includes at least two sub-clusters which are not contiguous with each other.